



## **C19210** Copper Iron, High Conductivity

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Fisk Alloy Wire Inc.  
P.O. Box 26  
10 Thomas Road N.  
Hawthorne, NJ 07506 U.S.A.

Phone: (973) 825-8500  
Fax: (973) 427-4585  
E-mail: [sales@fiskalloy.com](mailto:sales@fiskalloy.com)

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| Chemical Composition - Limits         | Chemical Composition - Nominal |
|---------------------------------------|--------------------------------|
| Cu rem (99.8 min incl named elements) | Cu 99.9                        |
| Fe 0.05-0.15                          | Fe 0.10                        |
| P 0.025-0.04                          | P 0.03                         |

  

| Fabrication Index |               |
|-------------------|---------------|
| Soldering         | 5 - Excellent |
| Hot Worked        | 5 - Excellent |
| Cold Worked       | 5 - Excellent |
| Brazing           | 5 - Excellent |
| Machinability     | 1 - Poor      |

## Physical Properties

|                                    |                          |
|------------------------------------|--------------------------|
| Annealing Range (Min)              | 840 °F                   |
| Annealing Range (Max)              | 1020 °F                  |
| Density                            | 0.323 lb/in <sup>3</sup> |
| Electrical Resistivity (Annealed)  | 13 Ω·cir-mil/ft @ 68 °F  |
| Electrical Conductivity (Annealed) | 80% IACS @ 68 °F         |
| Coefficient of Thermal Expansion   | 9.4 per °F (68-572 °F)   |
| Modulus of Elasticity (Tension)    | 18 ksi                   |
| Melting Point (Solidus)            | 1,620 °F                 |
| Melting Point (Liquidus)           | 1,880 °F                 |

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## Round Wire

| TEMPER NAME  | TEMPER CODE | TENSILE STRENGTH (ksi) |      | MILL LIMITS (inch) |
|--------------|-------------|------------------------|------|--------------------|
|              |             | Min                    | Max  |                    |
| Annealed     | O61         | 27.0                   | 42.0 | .0010 - .1285 inch |
| 1/4 Hard     | H01         | 44.0                   | 56.0 |                    |
| 1/2 Hard     | H02         | 52.0                   | 64.0 |                    |
| 3/4 Hard     | H03         | 58.0                   | 70.0 |                    |
| Hard         | H04         | 62.0                   | 74.0 |                    |
| Extra Hard   | H06         | 65.0                   | 77.0 |                    |
| Spring       | H08         | 68.0                   | 80.0 |                    |
| Extra Spring | H10         | 70.0                   |      |                    |

## Square Wire

| TEMPER NAME  | TEMPER CODE | TENSILE STRENGTH (ksi) |      | MILL LIMITS (inch) |
|--------------|-------------|------------------------|------|--------------------|
|              |             | Min                    | Max  |                    |
| Annealed     | O61         | 27.0                   | 42.0 | .0100 - .0808 inch |
| 1/4 Hard     | H01         | 44.0                   | 56.0 |                    |
| 1/2 Hard     | H02         | 52.0                   | 64.0 |                    |
| 3/4 Hard     | H03         | 58.0                   | 70.0 |                    |
| Hard         | H04         | 62.0                   | 74.0 |                    |
| Extra Hard   | H06         | 65.0                   | 77.0 |                    |
| Spring       | H08         | 68.0                   | 80.0 |                    |
| Extra Spring | H10         | 70.0                   |      |                    |

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## Rolled Flat

| TEMPER NAME  | TEMPER CODE | TENSILE STRENGTH (ksi) |      | MILL LIMITS (inch)               |
|--------------|-------------|------------------------|------|----------------------------------|
|              |             | Min                    | Max  |                                  |
| Annealed     | O61         | 27.0                   | 42.0 |                                  |
| 1/4 Hard     | H01         | 43.0                   | 53.0 | Thickness:<br>.0100 - .0500 inch |
| 1/2 Hard     | H02         | 47.0                   | 60.0 |                                  |
| 3/4 Hard     | H03         | 52.0                   | 62.0 | Width:<br>.0150 - .2500 inch     |
| Hard         | H04         | 56.0                   | 66.0 |                                  |
| Extra Hard   | H06         | 60.0                   | 70.0 |                                  |
| Spring       | H08         | 64.0                   | 74.0 |                                  |
| Extra Spring | H10         | 66.0                   |      |                                  |